

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-7. (Canceled)

8. (New) In a pump unit for pumping fuel to an internal combustion engine, having a rotor supported eccentrically in a pump chamber; a plurality of guide grooves disposed on the rotor circumference, and sealing bodies disposed in the grooves that are guided in the radial direction along a shaped sliding surface in the pump chamber, the shaped sliding surface having elliptical portions, the improvement wherein the course, expressed in polar coordinates (φ), of the radii (ρ) of the elliptical portions corresponds at least in portions to one of the two following equations, in which (R_2) is the radius of the rotor, n is a variable power, and (s_1) is the eccentricity:

$$\rho(\varphi) = \frac{R_2 * \sqrt{R_2 + 2s_1}}{\sqrt[n]{R_2^{n/2} * \left(\cos\left(\varphi + \frac{\pi}{2}\right)\right)^n + (R_2 + 2s_1)^{n/2} * \left(\sin\left(\varphi + \frac{\pi}{2}\right)\right)^n}}$$

$$\rho(\varphi) = \frac{\sqrt{R_2} * (R_2 + 2s_1)}{\sqrt[n]{R_2^{n/2} * (\cos(\varphi))^n + (R_2 + 2s_1)^{n/2} * (\sin(\varphi))^n}}$$

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Docket No. R.306246
Preliminary Amdt.

9. **(New)** The unit according to claim 8, wherein the parameter n is in the range between greater than or equal to 1.9 and less than or equal to 2.1.
10. **(New)** The unit according to claim 8, wherein the eccentricity (s_1) is less than or equal to a radius (R) of the sealing body.
11. **(New)** The unit according to claim 8, wherein the radii (ρ) of the various elliptical portions are the same at the transitions.
12. **(New)** The unit according to claim 8, wherein the slopes of the various elliptical portions are the same at the transitions.
13. **(New)** The unit according to claim 8, wherein the curvatures of the various elliptical portions are the same at the transitions.
14. **(New)** The unit according to claim 8, wherein the shaped sliding surface has from two to four elliptical portions.